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NOTES ON GEOGRAPHIC DISTRIBUTION

Reptilia, Gekkonidae, *Hemidactylus mabouia*, *Tarentola mauritanica*: Distribution extension and anthropogenic dispersal

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The gekkonid genera *Hemidactylus* and *Tarentola* are composed by small sized lizards, noticeably able to perform long distance natural and anthropogenic dispersal, followed by colonization of new areas (Kluge 1969, Vanzolini 1978, Carranza et al. 2000, Vences et al. 2004). Newly introduced gecko species, at least of the genus *Hemidactylus*, were reported as capable of displacing native ones (Hanley et al. 1998, Dame and Petren 2006, Rivas Fuenmayor et al. 2005).

Interestingly, human related translocations aided some of these invasive lizards to have currently an almost cosmopolitan distribution in tropical and temperate regions (Vences et al. 2004, Carranza and Arnold 2006). Two of these vagile species are *Hemidactylus mabouia* (Figure 1 A) and *Tarentola mauritanica* (Figure 1 B), which have spread from the Old World to the Neotropical Region, where at least the first is widely distributed (Peters and Donoso-Barros 1970, Vanzolini 1978, Martínez Rivera et al. 2003, Carranza and Arnold 2006).

Hemidactylus mabouia has largely invaded coastal as well as inland South America from the Caribbean Sea to southern Brazil (see Vanzolini 1978). The southernmost record in the literature for *H. mabouia* is Montevideo city, Uruguay (34° S; Simó et al. 1988), where *T. mauritanica* was also found in an urban area (Achaval and Gudynas 1983).

In this work we present new records of both species in Uruguay, some of them associated to accidental anthropogenic dispersal, new records of *H. mabouia* in Argentina, and the first record of the *H. mabouia* for Paraguay. Vouchers are deposited at *Colección Diego Baldo*, housed at *Museo de La Plata*, Argentina (MLP DB), *Colección Zoológica de la Facultad de Ciencias Exactas y Naturales*, Asunción, Paraguay (CZCEN), *Museo Nacional de Historia Natural de Montevideo* (MNHN, currently *Museo Nacional de Historia Natural y Antropología*), and *Colección de Reptiles, Departamento Zoología Vertebrados, Facultad de Ciencias, Universidad de la República*, Uruguay (ZVCR).

ARGENTINA. The occurrence of the genus *Hemidactylus* in this country was first reported by Williams (1988) from Parque Chacabuco, an urban area of Buenos Aires city. This record was based on a juvenile assigned to the species *H. turcicus*, collected with *T. mauritanica*. However, a recent examination of this juvenile specimen housed at *Museo de la Plata* (MLP S. 1092) revealed that it belongs to the species *H. mabouia* (J. D. Williams, in litt., April 2008). *Hemidactylus mabouia* was also reported to occur in northern

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Argentina at the city of Resistencia in Chaco Province (Federico and Cacivio 2000), at the city of Corrientes in Corrientes Province (Alvarez et al. 2002), and also at *Parque Nacional Iguazú*, in Misiones Province (Genise and Montanelli 1991). We found *H. mabouia* in several localities on urban centers of Misiones Province: Capital Departament, Posadas, Cabred street N#1855, 27°23' S, 55°53' W, 8 December 2006 (MLP DB 5485, collected by DB), 3 March 2007 (MLP DB 5600-5601, DB), and 17 March 2008 (MLP DB 6734-6735, DB); Barrio Tiro Federal, 27º21' S, 55°54' W, 18 July 2003 (MLP DB 2398, M. D'Oria), and 26 April 2007 (MLP DB 5685, C. Tomatis); Félix de Azara street N#1552, 27°21' S, 55°53' W, 25 July 2002 (MLP DB 1878, E. Ale), 17 August 2006 (MLP DB 5148, DB), and 20 December 2006 (MLP DB 5336, D. Martí); intersection of Félix de Azara street and Belgrano street, 27°21' S, 55°53' W, 25 March 2008 (MLP DB 6756, DB and E. Castillo); intersection of Rivadavia street and Salta street, 27°22' S, 55°53' W, 10 March 2008 (MLP DB 6757, J. Boeris and M. Pereyra), 21 March 2008 (MLP DB 6740, MP); and Villa Bloset, 27°22' S, 55°53' W, 15 June 2003 (MLP DB 2927, D. Reartes). We also recorded the species in Iguazú Departament, Andresito, 25°40' S, 54°02' W, 16 February 2005 (MLP DB 3759, DB y E. Krauczuk), and 5 December 2006 (MLP DB 5480-5481, DB, CB, DM and F. Kolenc); and in natural environments on the surroundings of Puerto Iguazú, 25º36' S, 54°33' W, 23 to 25 November 2005 (MLP DB 4163, MP and EK).

At the city of Posadas *H. mabouia* was first recorded by one of us (DB) in 1998, and was commonly seen at that time. This alien gecko is currently fairly common at this and the other abovementioned localities of Misiones Province. Its distribution range is likely to be more extended and eventually expanding throughout northeastern Argentina. Although most specimens of *H. mabouia* were observed associated to human edifications, it is worth noting the finding of one of them (MLP DB 4163) in a natural, forested habitat. This colonizing ability of almost undisturbed habitats was reported by Vanzolini (1978) for the Amazonian region and the Caatinga.

PARAGUAY. The occurrence of *H. mabouia* in Paraguay was first mentioned by Aquino et al. (1996) for Asunción, Central Departament and Concepción Departament, in a checklist of amphibians and reptiles of Paraguay at the *Museo Nacional de Historia Natural del Paraguay*. This species was also reported to occur in the area of Itaipú hydroelectric dam by Duré Rodas (1995). However, no reference material is mentioned in either works. Herein, we provide the first documented records of specimens collected in this country, at Barrio Jara, Asunción, Central Departament, 25°16' S, 57°35' W (CZCEN 0403, 0404, collected by F. Netto and FB), 9 April 2008.

URUGUAY. The presence of *H. mabouia* in this country was first reported by Kluge (1969) who cited one specimen from Montevideo, stored at the Museum of Zoology of the University of Michigan (UMMZ 59008; catalogue available on line at http://quod.lib.umich.edu/cgi/i/image/image-idx?c=amph3ic;page=search, accessed on 30 March 2008). More recently, Simó et al. (1988) collected specimens of this species in shipments of banana (*Musa acuminata*) imported from the state of São Paulo, Brazil, to Montevideo city during the early 80's. Those authors added that they were not aware of feral populations of *H. mabouia* in Uruguay at that time.

The occurrence of free-ranging *H. mabouia* in Uruguay was not reported until 2000, when Carreira et al. (2005) and Achaval and Olmos (2007) mentioned its presence for Rivera city, Rivera Department, northern Uruguay. We report the collection of several specimens of *H. mabouia* by one of us (JEG) at the following new localities: La Coronilla, Rocha Department (33°55' S, 53°25' W), 10 February 2005, a juvenile (ZVCR 6311) captured in a truck shipment of banana coming from the state of Santa Catarina, Brazil; Chuy, Rocha Department (33°42' S, 53°33' W), at the border with Brazil, 3 June 2005, two juveniles (MNHN 7178-79) and three adults (MNHN 7175-77) accidentally introduced with bananas imported from Santa Catarina; at this same locality a single free ranging adult and juvenile specimens collected in an urban area in 2004 (MNHN 7173 and 7174 respectively).

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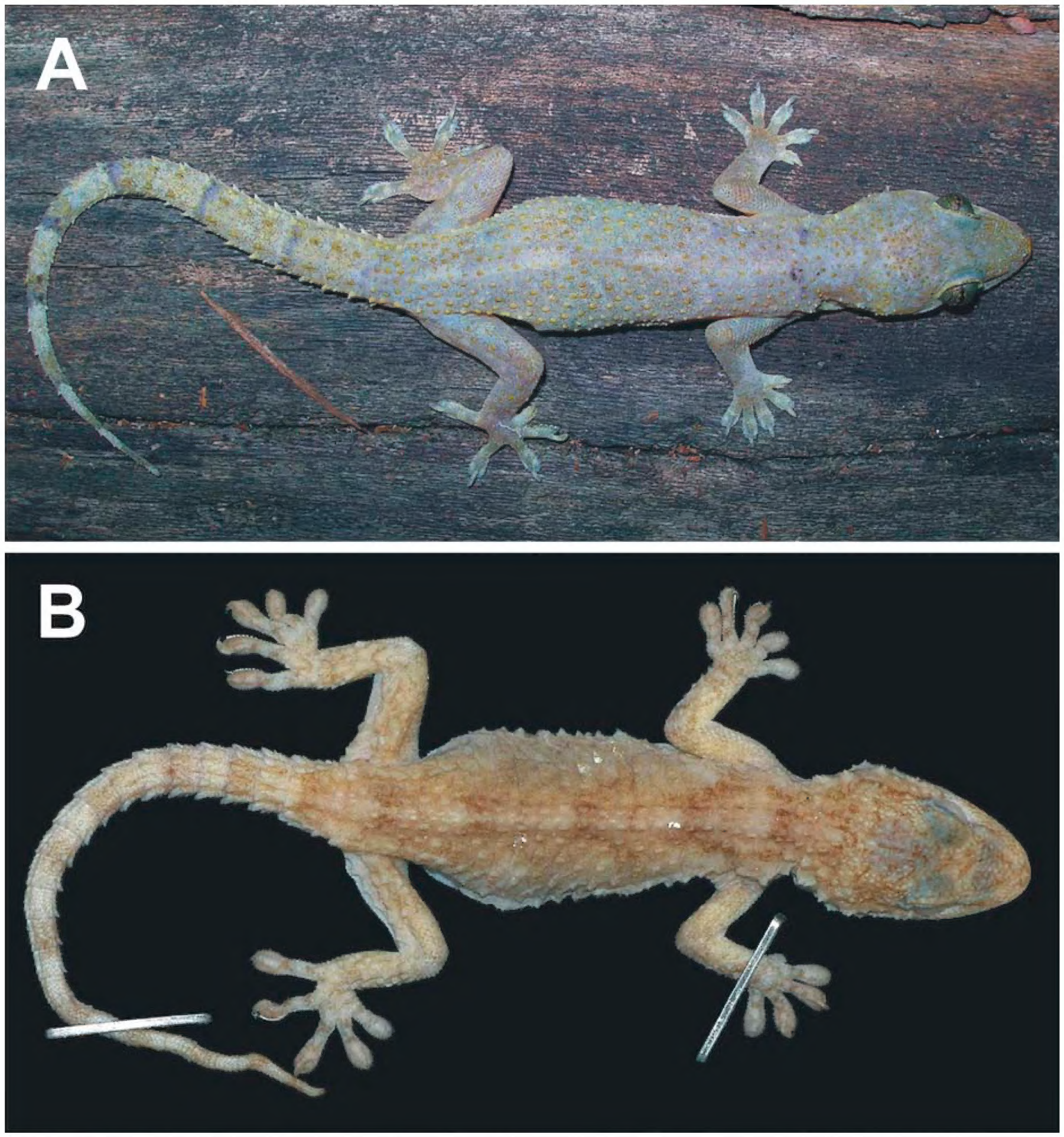

Figure 1. A. *Hemidactylus mabouia* from Posadas, Misiones Province, Argentina (MLP DB 5148). B. *Tarentola mauritanica* from Malvín, Montevideo, Uruguay (fixed specimen MNHN 7172).

Carreira et al. (2005) suggested the presence of a feral population of *H. mabouia* at Rivera based on the collection of two juvenile specimens. We consider the status of *H. mabouia* at the new localities in southern Uruguay as uncertain, as most specimens (adults and juveniles) were collected during episodes of anthropogenic dispersal. Closest known localities where *H. mabouia* occurs in southern Brazil are Porto Alegre, Viamão, and São Lourenço do Sul in the state of Rio Grande do Sul (Kluge 1969, Vanzolini 1978, Carreira et al. 2005), and Florianopolis and nearby islands in coastal state of Santa Catarina (Vanzolini 1978). As it happened with gekkonid lizards, several invertebrate and vertebrate species were accidentally introduced in Uruguay via shipments of banana coming from Brazil (see Simó et al. 1988).

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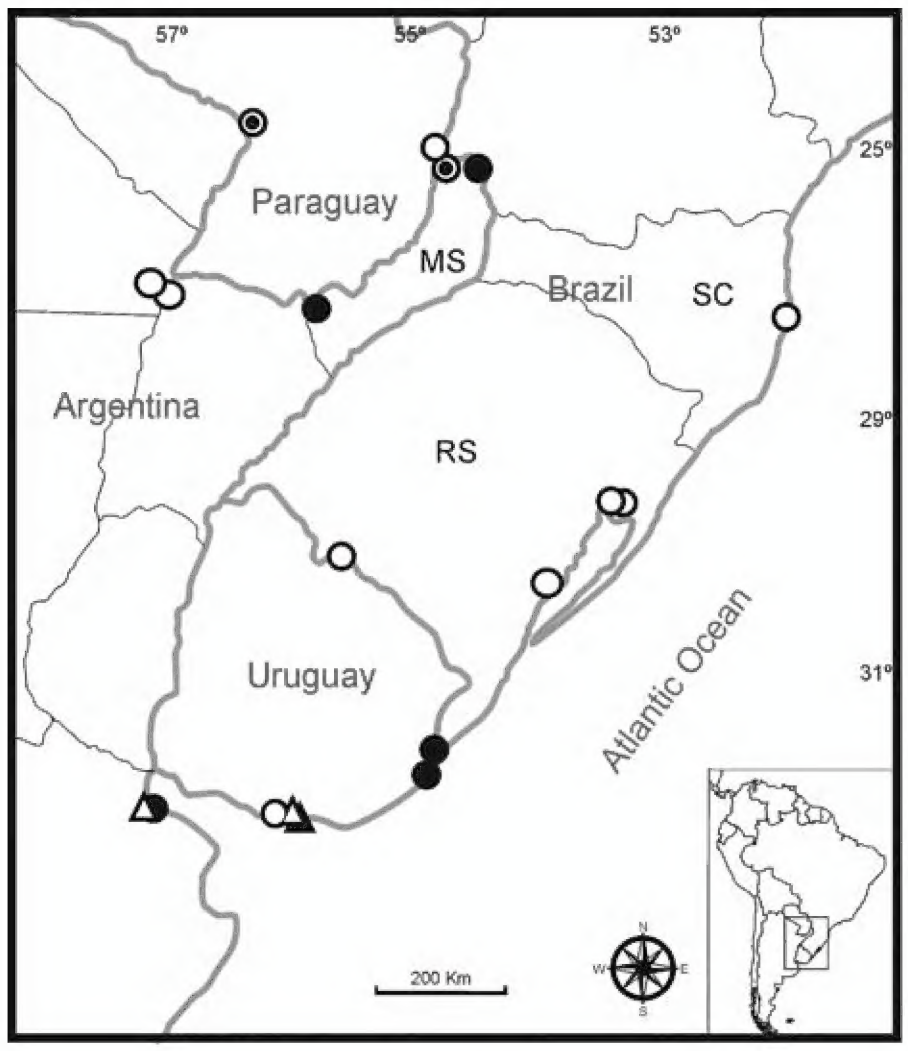

Figure 2. Southernmost known localities for *H. mabouia* (circles) and *T. mauritanica* (triangles) in South America. Open marks correspond to literature data (see text), and solid ones are the new localities cited in this work. MS, Misiones Province; RS, state of Rio Grande do Sul; SC, state of Santa Catarina.

We also detected the introduction of an adult specimen of the colubrid snake *Mastigodryas bifossatus triseriatus* at the locality of Chuy, in a wood shipment transported by truck from Rio Grande do Sul in 2002 (MNHN 7180, JEG). *Mastigodryas bifossatus* was previously considered to occur in Uruguay by Amaral (1929, as *Drymobius bifossatus*) and also Peters and Orejas-Miranda (1970) cited *Mastigodryas bifossatus bifossatus* for this country. However, no specimens were reported to have been collected in Uruguay until the present work (see Carreira et al. 2005). Few specimens of *Tarentola mauritanica* were previously collected in a urban area of Montevideo city, for which the occurrence of a resident population was suggested (Achaval and Gudynas 1983). Herein, we report the collection of an adult specimen at a new locality, in 2000, at the intersection of Samuel Blixen street and Mataojo street, Malvín, Montevideo (34°53' S, 56°07' W; MNHN 7172, CP). This record is about 7 km southeast (straight-line distance) from previous ones, and we do not know whether it corresponds to a new introduction episode or to a range expansion within the urban area of Montevideo. The new localities reported in this work for *H. mabouia* and *T. mauritanica* are shown in Figure 2.

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